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CENTRAL INTELLIGENCE AGENCY
INFORMATION FROM
FOREIGN DOCUMENTS OR RADIO BROADCASTS

REPORT

CD NO.

COUNTRY	USSR
SUBJECT	Economic - Machine tools, bearings
HOW PUBLISHED	Daily newspapers
WHERE PUBLISHED	USSR
DATE PUBLISHED	25 Jun - 11 Jul 1949
LANGUAGE	Russian

DATE OF INFORMATION 1949

DATE DIST. 25 Aug 1949

NO. OF PAGES 3

SUPPLEMENT TO REPORT NO.

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NEW MACHINE TOOLS AND METHODS INTRODUCED

HIGH-SPEED TOOLS PRODUCED -- Pravda, No 192, 11 Jul 49

Machine-tool plants have recently mastered the production of a number of new types of machine tools which operate at high speeds. The Gor'kiy Machine-Tool Plant has begun serial production of a new bracket milling machine having a spindle speed of 1,500 revolutions per minute, twice the speed of the machine previously produced by the plant. The machine is controlled by one crank handle.

A milling machine put out by the Dmitrov Plant is capable of from 56 to 1,700 revolutions per minute. The machine has a semiautomatic work cycle, accelerated idling speed, and simple control.

The Middle Volga Machine-Tool Plant in Kuybyshev has put out a new universal thread-cutting lathe which has a spindle speed three times that of the model formerly produced.

A powerful universal semiautomatic gear-cutting machine has been developed by the Kolomna Machine-Tool Plant. It is designed for cutting teeth of various forms on cylindrical gears up to 1½ meters in diameter. All the auxiliary motions of the machine are performed automatically.

The Odessa Plant has developed and constructed a heavy radical drilling machine which can cut at high speeds holes up to 75 millimeters in diameter. The machine has a spindle speed of 1,400 revolutions per minute.

The Moscow Grinding Machine Plant has developed a machine for grinding circular saws used in millwork enterprises. The Plant has also developed a surface-grinding machine.

Pravda, No 182, 1 Jul 49

The Machine-Tool Building Plant imeni Kirov in Vitebsk has begun production of a new machine for grinding piston rings for automobile and tractor engines. The machine has a special magazine in which 200 rings can be loaded at once.

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Kommunist, No 160, 9 Jul 49

The Yerevan Repair Plant is making the Mesis universal mill-working machine.

MINSK MACHINE-TOOL PLANT LAGS -- Sovetskaya Belorussiya, No 135, 9 Jul 49

During the first 3 years of the postwar Five-Year Plan, the Machine-Tool Building Plant imeni S. M. Kirov in Minsk consistently fulfilled the State plans and in 1948 exceeded the prewar level of production. In 1949, the plant was given the task of raising its volume of production by 50 percent over its actual 1948 production.

During the first 5 months of 1949, the plant, while exceeding the production figure of the corresponding period of 1948, failed to meet its raised assignment. The 5-month plan for gross production was not completed, nor was the plan for assortment of products and cost of production. The main reason for this failure is that the management of the plant (director, Matyush') did not make the preparations necessary for completion of the 1949 plan, such as strengthening the leading production units, organizing labor, adjusting intraplant planning, and promoting technical progress.

The plant's operations are not well planned. Production figures for the past 3 or 4 months show that during the first 10 days of each month, the plant did not assemble any machines, during the second 10 days it assembled 13 - 20 percent of the month plan, and during the third 10 days it assembled up to 74 percent of the month plan.

BEARING PLANT SAVES METAL BY NEW PROCESSES -- Moskovskiy Bol'shevik, No 148, 25 Jun 49

The 1st State Ball-Bearing Plant imeni L. M. Kaganovich saved more than 1,000 tons of high-quality bearing steel last year.

By introducing a new method for manufacturing bearing races by rolling, this plant saved 850 tons of metal. This method made it possible to reduce waste products 15 - 40 percent, depending on the dimensions of races. Plant engineers are now perfecting the rolling process as well as the designs for rolling mills.

Rolling is an auxiliary step which lengthens the technological process of manufacturing bearings from billets and thus makes production more expensive. The new method of making races entails stamping in enclosed dies, or as it is called at the plant, "stamping in dies." The use of these dies on swaging machines produces semifinished parts having ideal surfaces and tolerances 6 - 8 percent closer than obtained by usual stamping methods. Thus, many tons of steel are saved which would ordinarly have been wasted in chips.

Due to this closer tolerance, 300 machine tools (semiautomatic and multicutting) were successfully converted to high-speed methods of cutting. As a result, the plant's lathe department has not become a bottleneck.

At the end of last year, stamping in dies was only an interesting experiment which had promises for the future. At present, it is the basic method for preparing small-size races having diameters up to 80 milimeters.

The use of the automatic block system on swaging machines which was worked out by engineers Chichilo, Vasyukov, and Bagrov has resulted in great savings in metal and time.

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In an attempt to cut the unavoidable idle time of swaging machines while changing heated rods from which races are stamped, the forgers frequently continue to forge until the metal cools below the specified temperature. As a result, the height of the races is too great. Therefore, 2 - 3 and sometimes 5 millimeters of metal must be ground off on lathes. It frequently happens that such "cold" forged pieces are rejected. In general, up to 40 percent of all rejects are the result of this procedure.

The electric attachment devised under Chichilo's leadership stops the swaging machine operation at the exact moment that the temperature of the metal being forged reaches the specified level. Thus, the forged piece of cold metal is ejected from the machine, and rejects are eliminated.

As of June 1949, the automatic block system had been installed in six machines. By 1 July six more machines should be thus equipped.

Substantial savings in metal can be effected by the use of thick-walled pipe in place of rods for the production of medium-sized races. For example, races for Type 7205 bearings, at present being made from rods, consume 356 grams of metal. If they were made from pipe, only 194 grams of metal would be used, a 46-percent saving in material. On "205" races 156 grams of steel would be required instead of 385 grams. On the "305" races, 67 grams could be saved.

A method for producing races from pipe has been worked out by the 1st State Ball-Bearing Plant, and experimental races have been manufactured by this method. This new process has attained widespread popularity. However, the plant is not in a position to carry out this process due to the stubborn opposition of metallurgists who find it much simpler to supply bearing-makers with rods rather than pipe.

It is necessary for the Ministry of Metallurgy to step in and settle this matter. The main consideration is the saving of many thousands of tons of high-quality metal.

Experiments in the manufacture of brass cages for bearings by a method of precision casting are being successfully carried out at the 1st State Ball-Bearing Plant.

At present, cages are being made from brass pipes through milling and lathe operations. By this method, 50 - 80 percent of the brass goes into chips. Although a large part of these chips goes into the charge, half of this chip load burns out in the smelting process. Brass casting produces parts which require no mechanical operations with the exception of cutting off the feeder head.

The introduction of precision casting at the 1st State Ball-Bearing Plant is being vigorously carried on by Kuznetsov, chief of metallurgy, and chief technologist Baryshev, with the assistance of Potapov, director of "Orgavtoprom."

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